

In the Claims:

Claims 1 to 16 (Canceled).

1 17. (Currently amended) An arrangement for detecting a shaft
2 break on a rotor of a first turbine (10) positioned
3 upstream, with respect to a gas flow direction, from a
4 second turbine (11) in a gas turbine machine, said
5 arrangement comprising a mechanical operator element (16)
6 positioned between the rotor of the first turbine (10) and
7 a stator of the second turbine (11) radially inwardly
8 relative to a gas flow channel, and a sensor element (21)
9 guided in the stator of the second turbine (11),

10 wherein the mechanical operator element is linearly
11 slidably arranged between the rotor of the first turbine
12 and the sensor element, and is located adjacent to the
13 rotor such that the rotor will strike the operator element
14 and linearly slide the operator element with a linear
15 sliding motion toward the sensor element in the event of
16 the shaft break, [[and]]

17 wherein the sensor element is arranged and adapted to
18 convert the linear sliding motion of the operator element
19 into an electrical signal and to transmit the electrical
20 signal to a switching element positioned radially outwardly
21 relative to the gas flow channel on a housing of the gas
22 turbine. turbine, and

23 wherein the sensor element (21) is guided in a radial
24 direction in the stator of the second turbine (11), and is
25 withdrawable out of the stator of the second turbine (11)
26 in the radial direction.

1 18. (Previously presented) The arrangement of claim 17,
2 characterized in that the operator element (16) is
3 positioned between a last rotor blade ring of the first
4 turbine (10), as seen in the flow direction, and a first
5 guide vane ring of the second turbine (11), as seen in the
6 flow direction.

1 19. (Previously presented) The arrangement of claim 18,
2 characterized in that the operator element (16) is
3 positioned radially inwardly and neighboring to a rotor
4 disk (12) of the last rotor blade ring, as seen in the flow
5 direction, of the first turbine (10).

1 20. (Currently amended) ~~The arrangement of claim 17,~~
2 ~~characterized in that~~ An arrangement for detecting a shaft
3 break on a rotor of a first turbine (10) positioned
4 upstream, with respect to a gas flow direction, from a
5 second turbine (11) in a gas turbine machine, said
6 arrangement comprising a mechanical operator element (16)
7 positioned between the rotor of the first turbine (10) and
8 a stator of the second turbine (11) radially inwardly

9 relative to a gas flow channel, and a sensor element (21)
10 guided in the stator of the second turbine (11),

11 wherein the mechanical operator element is linearly
12 slidably arranged between the rotor of the first turbine
13 and the sensor element, and is located adjacent to the
14 rotor such that the rotor will strike the operator element
15 and linearly slide the operator element with a linear
16 sliding motion toward the sensor element in the event of
17 the shaft break,

18 wherein the sensor element is arranged and adapted to
19 convert the linear sliding motion of the operator element
20 into an electrical signal and to transmit the electrical
21 signal to a switching element positioned radially outwardly
22 relative to the gas flow channel on a housing of the gas
23 turbine, and

24 wherein the operator element (16) is guided in a
25 radially inwardly located sealing structure (13) of the
26 stator of the second turbine (11) in an axial direction or
27 in the flow direction, whereby the operator element (16) is
28 fixed in the axial direction by a shearable pin (18).

Claim 21 (Canceled).

1 22. (Currently amended) The arrangement of ~~claim 21~~, claim 17,
2 characterized in that the sensor element (21) is guided in
3 a first guide vane ring of the second turbine (11) as seen
4 in the flow direction.

1 23. (Previously presented) The arrangement of claim 20,
2 characterized in that the sensor element (21) cooperates,
3 at a radially inwardly positioned end, with the operator
4 element (16) in such a way that, in response to a shaft
5 break, the operator element (16) is moved onto the sensor
6 element (21) and hits the same while the pin (18) is
7 sheared off, whereby the sensor element (21) generates
8 thereof an electrical signal that represents a shaft break.

1 24. (Previously presented) The arrangement of claim 17,
2 characterized in that the sensor element (21) is
3 constructed as an impact sensor the structure of which is
4 changed by an impact of the operator element (16) onto the
5 same.

Claims 25 to 33 (Canceled).

1 34. (Previously presented) The arrangement of claim 17, wherein
2 the gas turbine machine is an aircraft engine, the first
3 turbine is a medium pressure turbine, and the second
4 turbine is a low pressure turbine.

1 35. (Currently amended) A gas turbine machine comprising:
2 a first turbine including a rotor shaft and a first
3 turbine rotor connected to said rotor shaft;

4 a second turbine including a second turbine stator
5 arranged downstream from said first turbine rotor with
6 respect to a gas flow direction through a gas flow channel
7 of said gas turbine machine;

8 a mechanical operator element that is linearly
9 slidably mounted to said second turbine stator, and that
10 has a first end facing toward and exposed to but spaced
11 apart from said first turbine rotor with a spacing gap
12 therebetween, and that has a second end opposite said first
13 end and oriented downstream with respect to the gas flow
14 direction; and

15 an electromechanical sensor element mounted to said
16 second turbine stator adjacent to said second end of said
17 mechanical operator element;

18 wherein said mechanical operator element is arranged
19 such that, if said rotor shaft breaks, then said first
20 turbine rotor will strike said first end of said mechanical
21 operator element and slide said mechanical operator element
22 against said sensor element, and responsive thereto said
23 sensor element is adapted to produce an electrical ~~signal~~.
24 signal; and

25 wherein said mechanical operator element is linearly
26 slidable in an axial direction parallel to an axis of said
27 gas turbine machine, and said sensor element is linearly
28 radially guided in said second turbine stator to be
29 linearly radially removable out from said gas turbine
30 machine in a direction radial to said axial direction.

1 36. (Previously presented) The gas turbine machine according to
2 claim 35, wherein said mechanical operator element is
3 located radially inwardly relative to said gas flow channel
4 with respect to a central axis of said gas turbine machine.

Claim 37 (Canceled).

1 38. (New) The gas turbine machine according to claim 35,
2 wherein said mechanical operator element is positioned
3 between a last rotor blade ring of said first turbine
4 rotor, as seen in the gas flow direction, and a first guide
5 vane ring of said second turbine stator, as seen in the gas
6 flow direction.

1 39. (New) The gas turbine machine according to claim 35,
2 wherein said mechanical operator element is positioned
3 radially inwardly and neighboring to a rotor disk of a last
4 rotor blade ring of said first turbine rotor, as seen in
5 the gas flow direction.

1 40. (New) The gas turbine machine according to claim 35,
2 wherein said sensor element is guided in a first guide vane
3 ring of said second turbine stator, as seen in the gas flow
4 direction.

1 41. (New) The gas turbine machine according to claim 35,
2 wherein said sensor element comprises an impact sensor

3 having a structure that is adapted to be changed by an
4 impact of said mechanical operator element onto said impact
5 sensor.

1 42. (New) The gas turbine machine according to claim 35,
2 wherein said gas turbine machine is an aircraft engine,
3 said first turbine is a medium pressure turbine, and said
4 second turbine is a low pressure turbine.

1 43. (New) A gas turbine machine comprising:

2 a first turbine including a rotor shaft and a first
3 turbine rotor connected to said rotor shaft;

4 a second turbine including a second turbine stator
5 arranged downstream from said first turbine rotor with
6 respect to a gas flow direction through a gas flow channel
7 of said gas turbine machine;

8 a mechanical operator element that is linearly
9 slidably mounted to said second turbine stator, and that
10 has a first end facing toward and exposed to but spaced
11 apart from said first turbine rotor with a spacing gap
12 therebetween, and that has a second end opposite said first
13 end and oriented downstream with respect to the gas flow
14 direction; and

15 an electromechanical sensor element mounted to said
16 second turbine stator adjacent to said second end of said
17 mechanical operator element;

18 wherein said mechanical operator element is arranged
19 such that, if said rotor shaft breaks, then said first
20 turbine rotor will strike said first end of said mechanical
21 operator element and slide said mechanical operator element
22 against said sensor element, and responsive thereto said
23 sensor element is adapted to produce an electrical signal;
24 and

25 wherein said second turbine stator includes a radially
26 inwardly located sealing structure, said gas turbine
27 machine further comprises a shearable pin, said mechanical
28 operator element is guided in said sealing structure in an
29 axial direction or in the gas flow direction, and said
30 mechanical operator element is fixed in the axial direction
31 by said shearable pin.

1 44. (New) The gas turbine machine according to claim 43,
2 wherein a radially inner end portion of said sensor element
3 cooperates with said mechanical operator element and said
4 shearable pin such that if said rotor shaft breaks, then
5 said first turbine rotor will strike said first end of said
6 mechanical operator element thereby shearing off said
7 shearable pin and sliding said mechanical operator element
8 against said sensor element and responsive thereto said
9 sensor element is adapted to produce the electrical signal
10 representing the break of said rotor shaft.